

## PREFACE

While we were the students of M.Sc. oceanography way back during 70s only one popular book on physical oceanography was known i.e. The Oceans, their physics, chemistry and general biology by H.U.Sverdrup, Martin W. Johnson and Richard H. Fleming. But today large number of text books on this subject available and most of them written by foreign authors. Though a few books were written by Indian authors like that of Descriptive Physical Oceanography by M.P.M.Reddy, the information contained in them is fragmentary and highly insufficient for the class room study & examination point of view by an average Indian student as they lack information on Indian ocean studies.

Though voluminous research has been done on various aspects of physical oceanography bordering the Indian coasts, North and South Indian Oceans by various scientists of India and abroad, the information is confined only to journal articles and no attempts have been made so far by any body to bring down these research advances to the level of university students for their class room studies. So this book may be considered to have been made as an attempt in this regard.

There is an urgent and dire need to incorporate various items of recent advances of Tropical Indian Ocean research in the syllabi of Indian Universities so that students will be in a position to know what is happening around our own seas. Thus this book will give the latest information around our seas particularly with respect to distribution of physical properties, heat balance, water masses and circulation.

This book has come out of thirty years of teaching experience of Dr. A.S.N. Murty, the first author, at Berhampur University and a powerful thought and research output of Dr. V.S.N. Murty, the second author, with an equal years of research experience at the National Institute of Oceanography (Council of Scientific and Industrial Research, Government of India), Goa .

This book contains seven chapters. Though chapters I & II are introductory chapters, they are bifurcated to give an emphasis on *International Indian Ocean Expedition* which is an important topic that every student need to know, in detail, as it is considered to be the beginning of Indian Ocean oceanography. Third and fourth chapters discuss about the *dimensions* and *physical properties of sea water*, in general, which are needed to understand the other chapters. While chapter V discusses about the *distribution of physical properties* in the oceans, extensive discussions were made for these distributions for the case of Indian Ocean. Chapter VI deals with the *heat budget* of the oceans with an emphasis on the Indian Ocean. The last chapter, chapter VII, deals with extensively on the *water masses and circulation in the Tropical Indian Ocean* which is the center topic of the book. Also *preface*, *large number of references*, *glossary and index* are appended for identifying certain important terms or definitions easily by the reader. As the syllabi of most of the universities imparting degrees in Oceanography, Meteorology or Marine Science contain these topics in the first year, this book will definitely help the student in giving up-to-date information for the examination point of view. In continuation of this elementary book an advanced book is also proposed to be brought out shortly to give the reader a full fledged knowledge in physical oceanography.

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